WHAT IS CLAIMED IS:

1. A multi-mode scheduler including a N×kM scheduler for adjusting data transmission between N-pieces of input interface sections, where said N is a positive integer, and said kM-pieces of output interface sections, where said M is a positive integer and said k is an integer not less than two, said multi-mode scheduler comprising:

k-pieces of N×M schedulers to be said N×kM scheduler; and

(k-1)-pieces of selection circuits for switching allocated output port information input from an outside of said N×kM scheduler and information from said N×M scheduler at a front step so as to be input to said N×M scheduler as allocated output port information:

wherein an operation of said N×kM scheduler or an operation of said N×M scheduler having k-pieces of priority classes is set freely with switching operation of said (k-1)-pieces of selection circuits.

2. The multi-mode scheduler according to Claim 1, wherein j-pieces of said N×kM scheduler (where j is an integer not less than two) are connected so as to make up said jN×kM scheduler when said allocated output port information input from said outside is used.

3. The multi-mode scheduler according to Claim 2, wherein each of said (k-1)-pieces of selection circuits selects said allocated output port information input from said outside when said allocated output port information input from said outside is used.

4. The multi-mode scheduler according to Claim 2, wherein j-pieces of said N×kM scheduler are pipeline-connected so as to make up said jN×kM scheduler (where j is an integer not less than two).

5. The multi-mode scheduler according to Claim 1, wherein said N×kM scheduler is used alone so as to make up said N×M scheduler having k-pieces of priority classes when information from said N×M scheduler at said front step is used.

6. The multi-mode scheduler according to Claim 5, wherein each of said (k-1)-pieces of selection circuits selects information from said N×M scheduler at said front step when said N×kM scheduler is used alone.

7. The multi-mode scheduler according to Claim 1, wherein each of said N-pieces of input interface sections includes a virtual output queue) buffer for storing reception data for each output interface section to be a destination.

8. A multi-mode scheduler including a N×kM scheduler for adjusting data transmission between N-pieces of input interface means, where said N is a positive integer, and said kM-pieces of output interface means, where said M is a positive integer and said k is an integer not less than two, said multi-mode scheduler comprising:

k-pieces of N×M schedulers to be said N×kM scheduler; and

(k-1)-pieces of selection means for switching allocated output port information input from an outside of said N×kM scheduler and information from said N×M scheduler at a front step

so as to be input to said N×M scheduler as allocated output port information:

wherein an operation of said N×kM scheduler or an operation of said N×M scheduler having k-pieces of priority classes is set freely with switching operation of said (k-1)-pieces of selection means.

9. The multi-mode scheduler according to Claim 8, wherein j-pieces of said N×kM scheduler (where j is an integer not less than two) are connected so as to make up said jN×kM scheduler when said allocated output port information input from said outside is used.

10. The multi-mode scheduler according to Claim 9, wherein each of said (k-1)-pieces of selection means selects said allocated output port information input from said outside when said allocated output port information input from said outside is used.

11. The multi-mode scheduler according to Claim 9, wherein j-pieces of said N×kM scheduler are pipeline-connected so as to make up said jN×kM scheduler (where j is an integer not less than two).

12. The multi-mode scheduler according to Claim 8, wherein said N×kM scheduler is used alone so as to make up said N×M scheduler having k-pieces of priority classes when information from said N×M scheduler at said front step is used.

13. The multi-mode scheduler according to Claim 12,

wherein each of said (k-1)-pieces of selection means selects information from said N×M scheduler at said front step when said N×kM scheduler is used alone.

14. The multi-mode scheduler according to Claim 8, wherein each of said N-pieces of input interface means includes a virtual output queue) buffer for storing reception data for each output interface means to be a destination.

15. An apparatus including a multi-mode scheduler including a N×kM scheduler for adjusting data transmission between N-pieces of input interface sections, where N is a positive integer, and kM-pieces of output interface sections, where M is a positive integer and k is an integer not less than two, said multi-mode scheduler comprising:

k-pieces of N×M schedulers to be said N×kM scheduler; and

(k-1)-pieces of selection circuits for switching allocated output port information input from an outside of said N×kM scheduler and information from said N×M scheduler at a front step so as to be input to said N×M scheduler as allocated output port information:

wherein an operation of said N×kM scheduler or an operation of said N×M scheduler having k-pieces of priority classes is set freely with switching operation of said (k-1)-pieces of selection circuits.

16. An apparatus including a multi-mode scheduler including a N×kM scheduler for adjusting data transmission between N-pieces of input interface means, where N is a positive integer, and kM-pieces of output interface means, where M is a

positive integer and k is an integer not less than two, said multi-mode scheduler comprising:

k-pieces of N×M schedulers to be said N×kM scheduler; and

(k-1)-pieces of selection means for switching allocated output port information input from an outside of said N×kM scheduler and information from said N×M scheduler at a front step so as to be input to said N×M scheduler as allocated output port information:

wherein an operation of said N×kM scheduler or an operation of said N×M scheduler having k-pieces of priority classes is set freely with switching operation of said (k-1)-pieces of selection means.

17. A multi-mode scheduling method used in a N×kM scheduler for adjusting data transmission between N-pieces of input interface means, where N is a positive integer, and kM-pieces of output interface means, where M is a positive integer and k is an integer not less than two, said multi-mode scheduler comprising:

k-pieces of N×M schedulers to be said N×kM scheduler; and

(k-1)-pieces of selection circuits for switching allocated output port information input from an outside of said N×kM scheduler and information from said N×M scheduler at a front step so as to be input to said N×M scheduler as allocated output port information:

wherein an operation of said N×kM scheduler or an operation of said N×M scheduler having k-pieces of priority classes is set freely with switching operation of said (k-1)-pieces of selection circuits.